AMSAT News Service Weekly Bulletins
Issue: ANS-111
Date: 2013-04-21
Sources: amsat-ans-2013-ans-111-weekly.txt

---

AMSAT NEWS SERVICE
ANS-111

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

In this edition:

* April 19 Soyuz-2-1B Launch Plans Cubesat Deployment on April 21
* April 21 Antares Launch to Orbit Three PhoneSat Cubesats
* April 25 China CZ-2D to Launch TURKSAT-3USAT Linear Transponder
* May 3 Vega Launch from Kourou to Orbit ESTCube-1 CubeSat
* AMSAT-NA Board of Directors Nominations Solicited
* ARISS School Contacts
* Order AMSAT/TAPR Dayton Banquet Tickets in the AMSAT Store
* Registration for the SA AMSAT Space Symposium is Now Open
* Inspiration and Success: The Story Behind N1LF's 1st Satellite QSO
* RockOn 2013 University Rocket Science Workshop
* Satellite Shorts From All Over

SB SAT @ AMSAT $ANS-111.01
ANS-111 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 111.01
>From AMSAT HQ SILVER SPRING, MD.
April 21, 2013
To All RADIO AMATEURS
BID: $ANS-111.01

```
**************************************************************
* Volunteers are needed to help at the AMSAT booth at Dayton.   *
* Steve Belter N9IP, is looking for volunteers to help man the  *
* AMSAT booth during the 2013 Hamvention. If you are willing    *
* to help at the Hamvention, please send an e-mail by April 30  *
* to Steve Belter, n9ip@amsat.org.                              *
*                                                               *
* Monitor the 'AMSAT at Dayton Hamvention 2013' link on the new *
* AMSAT Web Site http://www.amsat.org for the latest AMSAT at   *
* Dayton news and developments                                  *
**************************************************************
```

---

April 19 Soyuz-2-1B Launch Plans Cubesat Deployment on April 21

A Soyuz-2-1b from the Baikonur launch facility, in Kazakhstan on April 19, 2013 now has four cubesat missions using amateur radio frequencies and three commercial and science missions on-orbit:

| Satellite | Downlink | Mode |
|---|---|---|
| OSSI-1 | 145.980/437.525 | CW/1200bps (Amateur Band) |
| SOMP | 437.485 | 1200, 9600bps BPSK (Amateur Band) |
| BEESAT-2/3 | 435.950 | 4800bps GMSK/Mobitex (Amateur Band) |
| Bion-M1 | Biological research satellites | |
| AIST | Measurement of the Earth's geomagnetic field<br>435 MHz downlink/145 MHz command & control uplink | |
| Dove-2 | Commercial technology demonstration mission<br>450 MHz band downlink | |

Additional information and photos can be viewed on the AMSAT-UK web:
http://amsat-uk.org/2013/04/17/soyuz-cubesat-launch/

This page includes additional information on the planned deployment of the cubesats from the P-POD canisters: "Unusually the CubeSats will not be deployed straight after launch. All four CubeSats: OSSI-1, BEESAT-3, SOMP, and BEESAT-2 will be deployed around 10:45 UTC on Sunday, April 21. Until then orbital maneuvers will be carried out to achieve a circular orbit at 575 km altitude."

OSSI-1 Deployed on April 19
---
145.980 MHz CW, 437.525 MHz 1k2

OSSI-1, the Open Source Satellite Initiative satellite is a cubesat developed by Hojun Song DS1SBO. In addition to the radio beacons OSSI-1 also carries a 44 watt LED optical beacon to flash Morse Code messages to observers on Earth.

The development of the satellite has been documented on the Open Source Satellite Initiative Blog http://opensat.cc/blog/ and the Wiki http://opensat.cc/wiki/
http://www.youtube.com/watch?v=0L0zSY6cg
AMSAT-UK coverage can be read at:
http://amsat-uk.org/2013/04/19/ossi-1-amateur-radio-cubesat-launched/

BEESAT 3, BEESAT 2, SOMP, AIST and Dove-2 are expected to be separated from BION M1 in two batches on Sunday, April 21.

SOMP
---
Downlink on 437.485 MHz including CW, 1k2 and 9k6 BPSK, AX25 FSK, and AO40 standard 400bit/s BPSK

The Student Oxygen Measurement Project (SOMP) is a cubesat developed by students of the Technische Universit[illegible]t Dresden, Germany, organized in the Students[illegible] Research Group for Spacecraft Engineering in Dresden (STARD). SOMP will be a standard sized single CubeSat with one payload side and five sides with two solar cells each.

http://phpweb.tu-dresden.de/stard/SOMP/?lang[illegible]
http://tinyurl.com/SOMP-AMSAT-UK-Posting

BEESAT-2/3 (Berlin Experimental and Educational Satellite)
435.950 MHz, 4k8 GMSK (both satellites)

BEESAT-2 is a cubesat-sized vehicle carries a technology experiment using gyros and sensors for precise orientation.

BEESat-3 is another cubesat-sized vehicle that will test high-speed data links (up to 1MB/s).

http://www.raumfahrttechnik.tu-berlin.de/beesat/

The above cubesat missions and the scientific/commercial missions are also documented on Mineo Wakita's (JE9PEL) web page at: http://www.ne.jp/asahi/hamradio/je9pel/ossisomp.htm

[ANS thanks AMSAT-UK and Mineo Wakita, JE9PEL for the above information]

---

April 21 Antares Launch to Orbit Three PhoneSat Cubesats

Three PhoneSat cubesats are now on-orbit following the launch of the Orbital Sciences Corporation Antares(TM) rocket from NASA's Wallops Flight Facility (WFF) in eastern Virginia. The originally scheduled April 17 launch attempt was scrubbed. April 21 is the next planned launch attempt.

All three of the Phonesat cubesats carries an amateur radio payload on 437.425 MHz. Each cubesat will transmit during individual time slots. All three satellites transmit using AFSK (1200 bps) modulation, AX.25 packet coding and have vertical linear polarization. The two PhoneSat 1.0 satellites, Graham and Bell, transmit with a periodicity of respectively 28 seconds and 30 seconds. The PhoneSat 2.0 beta satellite, Alexander, transmit with a periodicity of 25 seconds.

The PhoneSat web at http://www.phonesat.org/ provides access to the "Dashboard" allowing you to track the location of our satellites in real time. Detailed information on the downlink packet telemetry format can be found on this page. The callsign will be KJ6KRW.

The orbit is very low (270km x 300km, 51.6deg) and the cubesats are expected to only remain on-orbit for two weeks. The satellites are battery powered with no additional charging from solar cells.

The Dove-2 commercial satellite is believed to use 2420.0 MHz for its downlink.

[ANS thanks the PhoneSat Team for the above information]

---

April 25 China CZ-2D to Launch TURKSAT-3USAT Linear Transponder

TAMSAT reports the TURKSAT-3USAT, the first communication nanosatellite mission of ITU, Istanbul Technical University, Istanbul, Turkey is expected to launch on April 25 aboard China's Chang Zheng-2D rocket. Also aboard this launch will be Ecuador's NEE 01 Pegaso 1U cubesat and Argentina's CubeBug-1 satellite.

TURKSAT-3USAT is a three unit CubeSat developed to provide SSB/CW communications in a 680 km Low Earth Orbit. It will fly a V/U linear transponder developed by TAMSAT, the Turkish Amateur Satellite Technologies Organisation.

+ Uplink center frequency 145.965 MHz
  (145.940-145.990 MHz bandwidth)
  Receive sensitivity -120 dBm

+ Downlink center frequency 435.225 MHz
  (435.200-435.250 MHz bandwidth)
  Output power 30 dBm (1W)

+ CW beacon on 437.225 MHz

Additional information can be accessed on-line at:
http://www.tamsat.org.tr/tr/turksat-3usat-is-almost-ready/
http://www.uk.amsat.org/?p670

CUBEBUG-1 Heading for Orbit Includes Amateur Radio Digipeater

CubeBug-1 is the first technology demonstration mission for a new CubeSat platform design (mechanics, hardware and software) intended to be released as Open Source and Open Hardware for its use in Amateur projects, University projects and research labs.

The project is sponsored by the Argentina Ministry of Science, Technology and Productive Innovation.

Payloads on this first mission include:
+ An ARM based on-board computer
+ A nano-reaction wheel with its driver circuit
+ A low resolution camera
+ All based on COTS components

CubeBug-1 is a 2U CubeSat and the team are planning to use half duplex communications on 437.445 MHz with 9k6 GMSK data. Telemetry information is at http://1.cubebug.org/coms/telemetry

After the technology demonstration part of the mission is over, the satellite will enter a mode that will include services to the Amateur radio community, including a Digipeater, science data downloads from the payload (including images if possible).

Watch a CubeBug-1 video at http://vimeo.com/56055215

CubeBug-1 website http://1.cubebug.org/

Follow CubeBug-1 on Twitter @CubeBug1

[ANS thanks AMSAT-UK, the CubeBug Team and TAMSAT for the above information]

---

May 3 Vega Launch from Kourou to Orbit ESTCube-1 CubeSat

Estonia's first CubeSat ESTCube-1, amateur radio callsign ES5E/S, is planned to launch from the ESA Spaceport in Kourou in the Caribbean on May 3, 2013 aboard an ESA VEGA rocket.

Built by students at the University of Tartu ESTCube-1 the main mission of the satellite is to test electric solar wind sail technology, a novel space propulsion technology that could revolutionalize transportation within the solar system. It will deploy a 10 meter conductive electrodynamic tether and the force interacting

with the tether will be measured.

The IARU Amateur Satellite Frequency Coordination Panel have published these frequencies for ESTCube-1:

+ 437.250 MHz – CW beacon, callsign ES5E/S
+ 437.505 MHz – 9600 bps AX.25 telemetry, callsign ES5E-11

More information and a video has been posted at:
http://amsat-uk.org/?p774

Additional news of the launch is posted at:
http://tinyurl.com/April-Vega-Launch (Space-Travel.com)

[ANS thanks AMSAT-UK and the University of Tartu ESTCube-1 Team for the above information]

---

AMSAT-NA Board of Directors Nominations Solicited

It is time to submit nominations for the upcoming open seats on the AMSAT-NA Board of Directors. A nomination requires either one Member Society or five current individual members in good standing to nominate an AMSAT member for the position. Four director's terms expire this year: Barry Baines, WD4ASW, Alan Biddle, WA4SCA, Drew Glasbrenner, K04MA, and Tony Monteiro, AA2TX.

In addition to traditional submission of written nominations, which remains unchanged and is the preferred method, nominations may be made by electronic means. These include e-mail, FAX, or electronic image of a petition. Electronic petitions should be sent to MARTHA at AMSAT.ORG or faxed to 301-608-3410. Written nominations, consisting of names, calls and individual signatures should be mailed to: AMSAT-NA, 850 Sligo Ave #600, Silver Spring, MD, 20910. No matter what means is used, petitions MUST arrive no later than June 15th at the AMSAT-NA office. If the nomination is a traditional written nomination, no other action is required. If it is other than this, i.e. electronic, a verifying traditional written petition MUST be received at the AMSAT-NA office at the above address within 7 days following the close of nominations on June 15th. ELECTRONIC SUBMISSIONS WITHOUT THIS SECOND, WRITTEN VERIFICATION ARE NOT VALID UNDER THE EXISTING AMSAT-NA BYLAWS.

[ANS thanks Alan, WA4SCA, AMSAT Corporate Secretary for the above information]

---

ARISS School Contacts

John McCrae High School, Nepean, Ontario, Canada
---
The International Space Station school contact with participants at John McCrae High School, Nepean, Ontario, Canada on 17 April was successful. The contact was completed via telebridge between OR4ISS and IK1SLD.

John McCrae Secondary school is named after the Canadian poet and doctor who during World War I, wrote the famous war memorial poem

"In Flanders Fields". With this heritage in mind the school hosts large community Remembrance Day ceremonies every November 11 and celebrates community works of art in the "Red Poppy" gallery. John McCrae students consistently rank among the best academic performers in the province, gaining post secondary acceptance across North America and winning many entrance scholarships.

Gray Mountain Primary School, Whitehorse, Yukon, Canada
---
The International Space Station school contact with participants at Gray Mountain Primary School, Whitehorse, Yukon, Canada on 23 April was successful. The contact was completed via telebridge with IK1SLD.

The incredible opportunity to speak with the ISS and Chris Hadfield has sparked a frenzy of space related themes and ideas throughout the school and inspired the community. The small school has been transformed into a space education station with student-created learning displays and artwork throughout. The kids have been reading and writing using space to inspire imaginations and incorporating space exploration into math and science lessons. A local artist is coming to build a life size Soyuz spacecraft out of recycled materials with the Grade 2s and 3s.

Upcoming School Contacts This Week:
---
+ Bates College Museum of Art, Lewiston, ME, telebridge via IK1SLD on Tuesday, April 23 at 14:38:47 UTC.

+ Maani Ulujuk Ilinniarvik (MUI), Rankin Inlet, Nunavut, Canada, telebridge via IK1SLD on Thursday, April 25 at 14:34:36 UTC.

+ Istituto d'Istruzione Superiore Euclide, Bari, Italy, telebridge via IZ7RTN on Saturday, April 27 at 11:17:19 UTC.

ARISS is requesting listener reports for the above contacts. Due to issues with the Kenwood radio that are not fully understood at present, the Ericsson radio is going to be used for these contacts. ARISS thanks everyone in advance for their assistance.

[ANS thanks ARISS for the above information]

---

Order AMSAT/TAPR Dayton Banquet Tickets in the AMSAT Store

AMSAT Hotel News
---
Per Martha at the AMSAT Office, the entire block of AMSAT rooms for Hamvention 2013 are now taken, and no more will be available.

Friday Evening AMSAT/TAPR Banquet at Dayton
---
Tickets for the dinner are $30 each, and must be purchased from the AMSAT Store at http://store.amsat.org/catalog/ by Tuesday, May 14.

The dinner will be held at:

The Kohler Presidential Banquet Center
4548 Presidential Way
Kettering, OH 45429

Doors open at 1830 for a cash bar with buffet dinner served at 1915.

Seating is limited to the number of meals we reserve with the Kohler caterers, based on the number of tickets sold by the deadline. Tickets will not be sold at Dayton, but tickets purchased online may be collected at the AMSAT booth (444-446 and 433-435).

Join us for a fun evening with good food, great company, and an outstanding speaker.

This year's speaker will be Bruce Perens, K6BP, with a humorous history of technology evangelism:  "The Evangelist's Dilemma: Driving New Ideas With Nothing But Words." As you can imagine, when you're promoting new ideas, there are things that inevitably go wrong. Bruce will pull examples from his history with Open Source, No-Code, Software Freedom, Codec2, and Open Hardware, and he'll introduce a few of the new battle grounds.

[ANS thanks AMSAT's 2013 Dayton Committee for the above information]

---

Registration for the SA AMSAT Space Symposium is Now Open

SA AMSAT will hold its annual space symposium in Pretoria at the Innovation Hub on Saturday 18 May 2012. The keynote speaker will be McLean Sibanda, the CEO of the Innovation Hub with the subject "Innovation is everyone's business". The agenda is packed with interesting presentations and demonstrations. The symposium is sponsored by Telkom.

Make your booking now to benefit from the early registration package. Full details and the registration form are available on http://www.amsatsa.org.za/SpceSymp2013.htm.

SARL and SA AMSAT members enjoy preferential rates. The registration fee includes a CD of all the papers as well as refreshments and a light lunch.

[ANS thanks the SARL News in English for April 13, 2013 for the above information]

---

Inspiration and Success: The Story Behind N1LF's 1st Satellite QSO

Les Rayburn, N1LF sent a message to the amsat-bb on April 14 which describes his ham radio journey to his first amateur satellite contact via FO-29.

Les wrote:
I've been a ham well over 40 years, since my childhood. Back then, I could barely afford the Heathkit transmitter, Halicrafters receiver, knife switch, and longwire antenna that made up my shack.

My elmer used to let me borrow his copy of QST and I'd dream about all the great adventures that I'd have "someday" in ham radio. Being a child of the Space Age, key among them were anything related to the New Frontier.

EME (Moonbounce), Meteor Scatter, and satellites all seemed like

the stuff of science fiction---and I longed to experience them all. But they were exotic, and required equipment far beyond my reach. I resolved to accomplish them all someday and added them to a sort of ham radio "bucket list" that I hoped to accomplish before my ham career was over.

Five years ago, shortly after getting started in weak signal VHF work, I checked off the first item on that list. Working meteor scatter contacts with the aid of WSJT software, and during a Perseid shower, even using SSB. What a thrill to make contacts off the ionized gasses of those tiny rocks. Thanks Joe Taylor!

Tonight, I managed to check off a second. I worked Art, K4YYL on FO-29, a Japanese amateur satellite!

My journey to the "birds" started about a month ago when I joined AMSAT, determined that 2013 was going to be "the year" when I finally got active on satellites. I purchased a copy of SATPC32 software, because I knew that it could control my IC-910H--hopefully making it easier to get active.

After listening to a few passes on both the FM and the SSB/CW birds, I decided to try my luck on the less-crowded FO-29. A brief CQ was quickly answered by Art. I adjusted the tuning knob just a bit to correct for the Doppler effect, and voila! there he was clear as a bell.

We had a brief QSO of perhaps ten minutes or so, and then we signed. I was quickly called by K4FEG near Memphis in EM55---who just wanted to welcome me to the birds!

Man, what a thrill! And it wasn't tough at all.

I'm using a 7 element 432 antenna tilted up to 15 degrees (fixed) and a 6 element 2 Meter beam tilted up to about 10 degrees (fixed) both inside my crowded attic. The SSB Electronics pre-amp helps a ton on 432, and the 1/2" hardline makes sure that I don't lose too much signal. So far, I've been able to copy the birds down to about 2 degrees above the horizon using this setup.

Now to attempt that EME contact! I've got a 12 element Yagi just waiting to deploy in the driveway once the weather warms a bit. Hoping to use WSJT to work one of the monster stations on EME. All this in a deed-restricted HOA neighborhood.

I wasted 35+ years on HF----man, all the fun really is in the World Above 50 MHz! Thanks for helping to make a boy's dreams come true at age 51!

[ANS thanks and congratulates Les Rayburn, N1LF for the above information]

---

RockOn 2013 University Rocket Science Workshop

U.S. university and community college faculty and students are invited to a weeklong workshop to learn how to build and launch a scientific experiment into space. NASA's Wallops Flight Facility in Virginia is hosting the RockOn 2013 workshop June 15-20, 2013, in partnership with the Colorado and Virginia Space Grant Consortia. Workshop participants must be U.S. citizens. The registration dead

line for the workshop is May 1, 2013.

The hands-on workshop teaches participants to build experiments that fly on sounding rockets. During the week, participants will work together in teams of three to construct and integrate a sounding rocket payload from a kit. On the fifth day of the workshop, the experiments will fly on a sounding rocket expected to reach an altitude of more than 70 miles.

Each experiment will provide valuable scientific data, analyzed as part of the student-led science and engineering research. The program engages faculty and students in science, technology, engineering and mathematics skills critical to NASA's future engineering, scientific and technical missions.

For more information about RockOn and to register online, visit:
http://spacegrant.colorado.edu/national-programs/rockon-2013-home

Questions about the workshop or the registration process should be directed to Chris Koehler by email at koehler@colorado.edu or by telephone at 303-492-3141.

[ANS thanks the NASA Education Express Message -- April 18, 2013 for the above information]

---

Satellite Shorts From All Over

+ A web-based Software Defined Radio for the 5, 7 and 14 MHz bands is now available on the new RSGB website. The "Web SDR receiver" link can be found under the "MyRSGB" drop-down menu. Also on the new site are "Live DX Cluster" and "Live solar data" pages under the "News" drop-down menu. See: http://www.rsgb.org/

+ The Florida Today newspaper published a story about the Merritt Island High School CubeSat project called StangSat. See: http://amsat-uk.org/2013/04/11/merritt-island-high-students-cubesat/

+ Video from the CanSat Leader Training Program is posted at: http://www.youtube.com/watch?v=K3dLrUmEQ&feature=player_embedded CanSats are tiny satellites, built to fit in the same space as a soda-can. UNISEC is running a training program in Japan later this year, to train people on how to build and teach building of these ingenious devices. See: http://www.unisec.jp/flash/index-e.html (via Southgate)

+ NASA has posted videos celebrating Earth Month and specifically Earth Day (April 22) from ISS imagery: http://www.youtube.com/watch?feature=player_embedded&v=Q0Hene1LY Another Earth Month video from satellite imagery is posted at: http://www.youtube.com/watch?v=c8Ozis-mo&feature=player_embedded

+ The Goddard Space Flight Center posted the best views of Earth from space in the last year, including true color satellite images, Earth science data visualizations, time lapses from the International Space Station, and computer models: http://www.youtube.com/watch?feature=player_embedded&v=kOSMf-LpY

+ Two UrtheCast cameras - one medium-resolution still camera and one high-resolution video camera are planned for launch on the Progress 53P cargo supply mission on October 16, 2013. The cameras will be

installed on the Zvezda Service Module of the Russian segment of the ISS, during its crew spacewalks. Soon after installation, Earth imagery and video will begin transmitting to ground stations across the globe via an existing high-speed downlink from the ISS, then streamed to the web. Read the full story at: http://spaceref.com/news/viewpr.html?pid@490

[ANS thanks everyone for the above information]

---

/EX

In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information. And with that please keep in mind that the integral of (1/cabin)d(cabin) is a natural log cabin, of course!

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM